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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,288	02/06/2007	Jurgen Hausselt	31775-226082 RK	3490

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VENABLE LLP
P.O. BOX 34385
WASHINGTON, DC 20043-9998

EXAMINER	
BERMAN, JASON	

ART UNIT	PAPER NUMBER
1724	

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12/29/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/568,288	HAUSSELT ET AL.	
	Examiner	Art Unit	
	Jason M. Berman	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/15/10*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) *10 and 11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/15/10, 6/10/09, 2/16/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of the Claims

Claims 1-11 are pending in the current application.

Claims 10-11 are withdrawn as being directed towards a non-elected invention.

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-9, in the reply filed on 10/15/10 is acknowledged.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then

narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 9 recites the broad recitation 5nm to 500 micrometers, and the claim also recites 10nm to 100 micrometers and 10 nm to 10 micrometers, which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1, 3-4 and 6-7 is rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki (JP 01196834 A, as cited in IDS).

As to claim 1, Suzuki discloses a method for producing ceramic structures by:

- Applying an electric field between the electrodes of an electrode pair (English translation abstract: anode and cathode plate);

- Submerged in a suspension that is positioned in a gravitational field (figure 1: showing electrodes in centrifuge tank 1);
- Contains ceramic particles in a distribution of particles sizes (English translation abstract: use of centrifugal force to only deposit portion of fine glass particles);
- Such that on one of the electrodes of the respective electrode pair only the particle size fraction of the ceramic particles is deposited which is smaller than a critical particle size that results from the balance between the gravity and electrical fields (English translation abstract: use of centrifugal force to deposit only a portion of the particles by electrophoresis).

As to claim 3, Suzuki discloses the gravitational field is generated with the aid of a rotating centrifuge (English translation abstract: rotated tank creates centrifugal force).

As to claim 4, Suzuki discloses the electrodes are arranged parallel to one another and perpendicular to the gravitational force generated by rotation, and the ceramic structure is deposited on the inner electrode (figure1(b): showing rotating tank 1, with parallel cathode and anode, with cathode and wafer [deposition substrate] in the center of the tank).

As to claim 6, Suzuki discloses the characterized smaller values for the distribution of particle sizes in the ceramic structure than in the suspension (English translation abstract: centrifugal motion used to separate particles and only allow fine particles at center of force to be deposited).

As to claim 7, Suzuki discloses the ceramic particles comprise mineral glass (English translation abstract).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki.

As to claim 5, Suzuki discloses an electrodeposition process in which the process takes place within a centrifuge (English translation abstract). Suzuki, while disclosing an electrical field and gravitational field (as discussed above), does not explicitly state that each of these fields may be varied. However, it would have been obvious to one of ordinary skill in the art at the time of the invention that both the electric field and gravitational fields are the primary result effective variables within the

deposition process: the electric field creates the fundamental driving force for the deposition process (English translation abstract: voltage applied for electrophoresis) while the gravitational force is used against the deposition force to control the size of particles deposited (English translation abstract: rotating the vessel so only fine glass particles at the center of the force are deposited). It has been held that both adjustability (MPEP 2144.04 V(D)) and discovering optimum values (MPEP 2144.05 II(B)) of result effective variables only requires routine skill in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the electric and gravitational fields adjustable in a device designed for electrodeposition in a centrifuge.

9. Claim 2 is are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki, as applied to claim 1 above, and further in view of Kumacheva (US 2004/0144650).

As to claim 2, Suzuki discloses the electrode plates are arranged parallel to one another (figure 1/2), but only discloses the plates in a vertical orientation.

Kumacheva discloses an electrodeposition process in which two horizontal parallel electrodes are placed in a gravitational field (figure 1c: showing electrodeposition process performed with gravity). Kumacheva discloses the use of parallel plates in a gravitational field assists with avoiding unwanted deposition

(paragraph 33: electrophoresis carried out against gravity to avoid particle sedimentation).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the electrophoresis horizontally, as disclosed by Kumacheva, in the method of Suzuki, because the natural gravity field would further assist with particle selection during deposition (Kumacheva at paragraph 33).

10. Claim is 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki, as applied to claim 1 above, and further in view of Lacher (US 3,791,577).

As to claim 2, Suzuki discloses the electrode plates are arranged parallel to one another (figure 1/2), but only discloses the plates in a vertical orientation.

Lacher discloses a centrifuge for separation of solid and liquid components (Col 1 lines 47-50). Lacher also discloses it is well known in the art that a centrifuge may be alternately mounted in either a horizontal or vertical orientation (col 1 lines 54-55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a horizontal orientation, as disclosed by Lacher, in the method of Suzuki, because this orientation is known in the art as equally effective and may additionally utilize gravity in the separation.

11. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki, as applied to claim 1 above, and further in view of Sasame (US 3,929,596).

As to claim 8, Suzuki is silent as to the suspension containing multiple types of ceramic particles.

Sasame discloses an electrodeposition process in which a mixture of ceramic materials, including AlO and SiC, are used to increase the wear resistance of the coating (abstract; col 4 lines 29-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a mixture of ceramics, as disclosed by Sasame, in the method of Suzuki, because this allows for increased wear resistance (Sasame at col 4 lines 29-45).

As to claim 9, Suzuki is silent as to the particle size range of the ceramic particles.

Sasame discloses the ceramic material is preferably between 0.5 and 9 or 1 and 5 microns to obtain the desired increased wear resistance (col 4 lines 46-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a particle size as disclosed by Sasame, in the method of Suzuki, because this allows for increased wear resistance (Sasame at col 4 lines 46-50).

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Berman whose telephone number is (571)270-5265. The examiner can normally be reached on M-R 8am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571)272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LUAN V VAN/
for Nam Nguyen, SPE of Art Unit 1724

/J. M. B./
Examiner, Art Unit 1795
12/28/2010